Responsiveness Summary Concerning EPA's April 22, 2002 Public Notice Proposing 11 TMDLs and Determinations That 4 TMDLs Are Not Needed for Waterbody Pollutant Combinations in the State of Louisiana

Public Participation Activity Conducted

On April 22, 2002, EPA Region 6 published a notice in the Federal Register: Volume 67, Number 77, pages 19575-19576. In addition EPA Region 6 placed public notices in the legal advertising section of the New Orleans Times-Picayune, The Lake Charles American Press, and The News Star (Monroe, LA). Additionally, EPA Region 6 notified the plaintiff's in the Louisiana total maximum daily load (TMDL) lawsuit of this action. This public notice requested comments from the public on EPA's proposed 11 TMDLs and determinations that TMDLs are not needed for 4 waterbody/pollutant combinations, in the Ouachita and Calcasieu Basins, from what was then referred to as the 2000 Louisiana court-ordered list.

Summary of Public's Comments:

The following person provided written comments during the comment period:

Mr. James D. Nelson, Ph.D., P.E.
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May 21, 2002

Ellen Caldwell
Environmental Protection Specialist
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U.S. Environmental Protection Agency Region 6
1445 Ross Ave.
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Dear Ms. Caldwell:

I have been asked to review draft TMDL reports on behalf of Weyerhaeuser (formerly Willamette Industries) of Ruston, Louisiana for the purpose of assisting them in understanding some of the technical details and providing comments on the TMDL reports to the EPA as a part of the public review process. The particular review discussed herein is for the "Total Maximum Daily Load (TMDL) for TSS, Turbidity, and Siltation for 13 Subsegments in the Ouachita River Basin" submitted to EPA by the Louisiana Department of Environmental Quality on March 31, 2002. More specifically these comments relate to two of the subsegments discussed in this TMDL report, Little River -Castor Creek (081601) and Little River - Bear Creek (081602).

First, I would like to emphasize that I fully understand the difficulty that an agency such as Louisiana DEQ has in trying to implement such an extensive water quality program as the TMDL program, Particularly with limited resources and personnel. I applaud their efforts in trying to improve water quality within our state, and in no way do I wish any of the following comments to be perceived as critical of those efforts. Still, there are some points in this draft TMDL report with which I disagree.

Based on my reading of the report, I understand that Louisiana DEQ is proposing that LDEQ subsegment 081601 (Little River - Castor Creek and Dugdemona River to Bear Creek) be included on the Louisiana 303(d) list for turbidity and that LDEQ subsegment 081602 (Little River - Bear Creek to Catahoula Lake) be included on the Louisiana 303(d) list for turbidity and siltation (Table 4, page 4 of the TMDL report). This recommendation is based on a target turbidity level of 25 NTU as established by Louisiana Water Quality Standards at §1113.B.9 for scenic streams. They have also included these two stream segments in Tables 8 and 9 (page 14 of the report) indicating the percent reduction in TSS loading necessary to bring these streams into compliance. I disagree with these recommendations based on the following observations.

Since there was no target value previously established for TSS for these streams, LDEQ has attempted to develop a TMDL target based on the relationship between turbidity and TSS, At first glance this would appear to be a reasonable approach. However, as is frequently the case, the difficulty lies in obtaining enough data to develop a statistically reliable relationship. The procedure LDEQ followed is indicated in the report on pages 7 through 9. Two regression equations were developed, one for January-June (wet season) data and another for July-December (dry season) data. The analysis indicates that reasonable relationships have been developed as indicated by an R 2 value of 0.40 for the wet season equation and 0.61 for the dry season equation. The report correctly states that these R 2 values indicate that during the wet season 60% of the variation in TSS remains unexplained by the equation and that during the dry season 39% of the variation remains unexplained. However, they then proceed to use these equations as if they are reliable. While it is true that it is difficult to get extremely high R2 values from natural hydrologic and environmental data, this does not provide justification for using the equations anyway. These R 2 values are simply too small to give us confidence that interpretations made from these equations will be reliable. This is an even more critical issue when, in the final analysis, we are judging a stream to be out of compliance with a TSS of 31.33 mg/I when the target (based on the regression equation) is 25 mg/I (see Table 6, page 10). It is not reasonable to use a model with such a low R 2 value to make a distinction of such a small magnitude.

***RESPONSE**: Thank you for the comment. Several parameters have been explored, by several groups involved in TMDLs in the area, to better predict the TSS value comparable to the numeric Turbidity standard. The relationship chosen is the best defined to date. It is our intent to gather more data and explore relationships to explain a portion of the variation that is currently unexplained. The target set for TSS is not a standard. The standards do not have a "small magnitude over" acceptance criteria or statistical bounds criteria.*

A more statistically rigorous approach would have been to develop a confidence interval about the regression line or about the individual predicted value of TSS for the given turbidity standard of 25 NTU. With such a large scatter in the data, this approach undoubtedly would have resulted in a large confidence interval and probably would have led to the conclusion that the average values of TSS measured for these streams are well within statistical bounds. For a discussion of the statistical procedures involved see (Haan, C.T 1977. Statistical Methods in Hydrology. Iowa State University Press.)

***RESPONSE**: Thank you for the comment. The confidence interval would be more appropriate if we were evaluating a single reading. The regression line usage would be a conservative assumption in regard to being protective of water quality. The average of the monitoring data is used, which will bring the value to the middle. Using the upper bound of a confidence interval applied to a target value would allow the monitoring average value to be compared to a target value that has been increased by the amount of variation in the data. That would make it very difficult for a segment to be declared*

impaired. We will obtain the Haan publication and see if that statistical approach can be applied in the future.

In general, similar comments can be made for the comparisons in turbidity, even though the turbidity target is based on a specified standard rather than the results of a regression equation. It would take much more data than we have available to conclude that the value of 25.81 NTU shown in Table 6, page 10 is significantly different than the target value of 25 NTU. Table 7, page 10 indicates an even closer match with 25.5 NTU in the stream compared to a target of 25 NTU. Natural variation in background turbidity can easily account for such small differences.

***RESPONSE**: Thank you for the comment. The standards do not have a "small magnitude over" acceptance criteria or statistical bounds criteria. The positive side of the numbers being so close together is that a small improvement in Best Management Practices could result in meeting the standard very soon.*

In the process of reviewing this TMDL report, these observations led to another issue. These numbers are so close to the target values that I felt it was appropriate to look at the original data from which these averages were determined, since a few small miscalculations could have easily altered the final conclusions. The original data sets for these streams were not included in the document, so I searched for them on the LDEQ web site (http://www.deq.state.la.us/surveillance/wqdata/wqnsites.stm. In fact, the data I found on that site for these two streams did give me a different answer than reported in the TMDL report. As far as I can tell, based on the information provided in the report, I calculated the numbers in the same way. But in every case, the five-year, seasonal averages I calculated from the data were below target values indicated in Tables 6 and 7 for stream subsegments 081601 and 081602. Perhaps there was more data than I had access to, but since this data set is available to the public, it seems to be worth rechecking the numbers.

***RESPONSE**: Thank you for the comment. The target values and percent reductions were revised in tables 6 and 7 for subsegments 081601 and 081602.*

However, regardless of the outcome of rechecking the data, my earlier statements are still valid. My averages came out slightly below the target values. The report indicates averages slightly above target values. The critical issue is to determine the natural background concentrations for turbidity and TSS with a reasonable degree of statistical confidence. All of the numbers shown are so close to target values that it is difficult to ascertain that these levels are significantly different from natural background levels.

Thank you for taking the time to review these comments. I would be pleased to go into any of these issues in more detail if deemed appropriate.

Sincerely,

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cc Ed Smith - Weyerhaeuser
Andy Kepper - Weyerhaeuser
Jami Nettles - Weyerhaeuser
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